Second Session Summary

"Learning Resources in the Coming Century: Facilitating Open and Flexible Learning in Higher Education."

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In the second session, Professor Larry Leifer (Stanford University, USA), Professor Edwin H. Brumby (Deakin University, Australia), and Professor Ryoichi Mori (Kanagawa Institute of Technology, Japan) were invited as panelists for discussions. Each of the three professors presented his arguments for 20 minutes, and then took questions from the audience in a question and answer period. Participants together addressed issues related to the theme "Learning Resources in the Coming Century: Facilitating Open and Flexible Learning in Higher Education."

The first presenter, Professor Leifer, gave the audience a prospectus on the Stanford University Learning Laboratory, which he heads, and introduced various studies being conducted by the laboratory. The laboratory was founded in May 1997, when researchers concluded that the introduction of pedagogically informed learning technology was the key to higher education in the 21st century as the result of a three-year study by specialists both inside and outside of the university. The purpose of this lab is to develop powerful new theoretical methods for the improvement of learning in creative partnership with related organizations and groups worldwide in this field.

A more specific objective of the lab is to help students and faculty manage personalized learning with collaborative knowledge webs. To realize this, the lab is planning to promote research based on "Product-Based Learning," a concept which resulted from a successful example of a product design development team of graduate students from the Engineering Department at Stanford University. In this method, lessons take place in a special classroom featuring the latest equipment and video cameras. Classroom activities are visualized, and then interactively observed, analyzed, and modified through experiments by the instructors and students. As a result, the development team received several prizes in the Graduate Design Competition. Also, the role of technology in Hi-Tech Education was clarified through confirmation of several findings, for example, the finding that physical space was needed in order to capture, preserve, and re-use their collective project.

Another finding was that technology made it possible to share knowledge through

communication with research teams in remote areas in virtual space. Also, it was shown that sharing knowledge through personal electronic notebook was very effective for creative thinking.

Based on this success, the lab envisions that all residential learning experiences in Stanford University can be made personal, appropriate, and creative through informed learning-technology designed for education. To accomplish this, the lab is trying to promote collaboration with professors within the university and industries, global corporations, and international educational organizations.

The second presenter was Professor Brumby, who heads up Learning Resource Services in Deakin University. In a talk entitled "Producing and Providing Learning Resources in the Coming Century: The View From One Australian University," professor Brumby explained the state of technologies introduced and learning resource applications being promoted in his university for the 21st century.

Deakin University has six campuses in Victoria State, with 50,000 students on and off campus. One of Australia's largest providers of flexible learning, the university early on introduced teaching and learning using audiovisual media, multimedia, computers, and the WWW. However, since the trend in Australian higher education is towards rapid deregulation, severe competition between universities due to cost reductions, stronger ties with industry, rapid introduction and application of technologies, and rapid internationalization, changes are taking place in the production and supply of learning resources at Deakin University. Although these changes are taking place in various areas, including policy and planning, infrastructure and technical support, sponsored demonstration projects, professional development, and evaluation, they share a uniform objective; namely, to shift from centralized, highly regulated, mass-production to localized, centrally supported small teams and individual preparation and production of learning resources through the use of communications technology. Deakin University is planning to develop international links and partnerships with other knowledge creators and purveyors with a special concentration in East Asia and countries around the Pacific Rim.

The third and final presenter was Professor Mori, Dean, Department of Computer Science and Engineering, Kanagawa Institute of Technology. In a talk entitled "Learning Resources in Higher Education in the 21st Century: What Will Happen and Why?" professor Mori focused on the problem of distribution of learning resources. With the Digital Revolution progressing, information which does not deteriorate can be distributed at very low cost. Also, teaching and learning using new technologies such as multimedia, hypertext, and teleteaching are being introduced. In the future, users will not have to create their own learning resources but will use those developed by a few large organizations, just as people today drive cars which are

manufactured by large makers. The Superdistribution System is being developed to distribute learning resources effectively and promote usage thereof. This system is intended to distribute learning resources freely and at low cost by a Label Reader installed in a user's computer which records information that specifies the cost and conditions of usage of the materials, and managing copyrights by electronic protection. Professor Mori's basic theory is that the digital revolution will continue through the Superdistribution System.

Our three panelists gave us diverse lectures on the situation of learning resources today, with Professor Leifer talking about an effective learning method by introducing highly advanced technology, Professor Brumby talking about how new learning resources should be as university reform progresses, and Professor Mori talking about the role of distribution to activate future learning resources. Even though the topics discussed by the three panelists were different, there was a common concept in their theories. This was the recognition that with the progression in technology, rapid changes are taking place in the higher education system today. New methods are thus required in terms of the development and application of learning resources.

In a follow-up discussion held after the lecture, the panelists raised many interesting opinions concerning the application of learning resources, an urgent problem in today's higher education. People discussed the wide, often uncontrollable use of intellectual properties as a result of digitization, and the role of instructors towards students in today's world, where everyone can easily access any information at any time thanks to digital technology. Frank views were also exchanged about a method for evaluating new education and learning technologies, a method to promote collaboration among professors, a task considered difficult, and the problem of funding for introducing advanced technology. The problems discussed were various and exciting, reflecting the situation of higher education today, which is changing dramatically through new developments in information technology. Many used the word "collaboration" as the keyword for developing learning resources in the future. The concept that new creative teaching and learning come from partnerships among people from different areas within the campus, within the country, and globally will spread recognition among those involved in the development and application of learning resources. I hope that collaboration in various areas will spread for the development of learning resources in the 21st century.